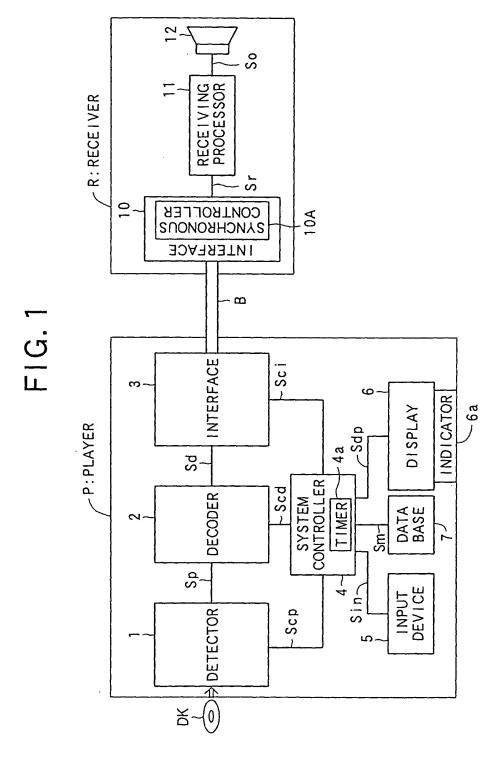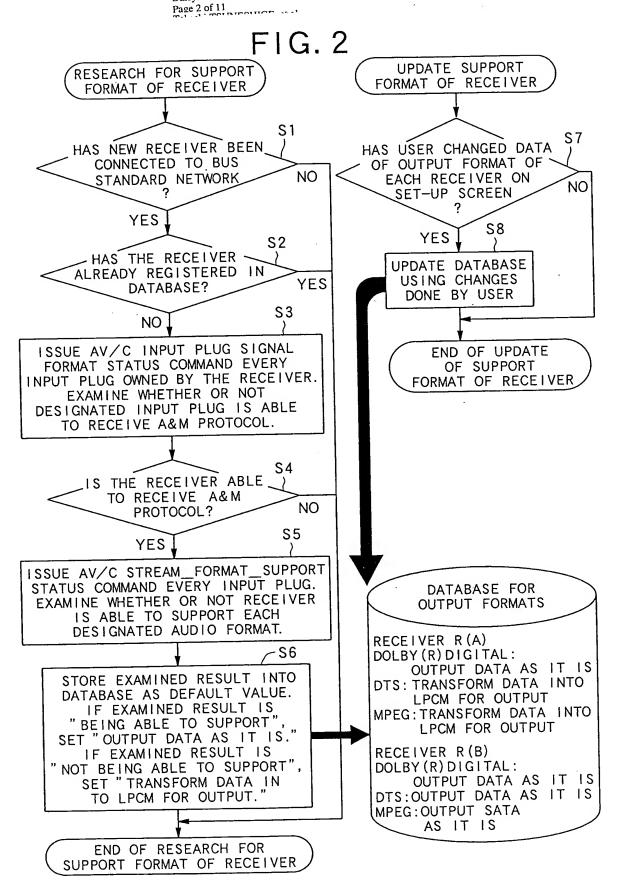Takashi TSUNESHIGE, et al.
METHOD AND APPARATUS FOR
TRANSMITTING INFORMATION VIA SERIAL
BUS
Q77407
September 12, 2003
Darryl Mexic   (202) 293-7060
Page 1 of 11

FIG. 1

Takashi TSUNESHIGE, et al.
METHOD AND APPARATUS FOR
TRANSMITTING INFORMATION VIA SERIAL
BUS
Q77407
September 12, 2003
Darryl Mexic   (202) 293-7060
Page 2 of 11

FIG. 2

RESEARCH FOR SUPPORT FORMAT OF RECEIVER

UPDATE SUPPORT FORMAT OF RECEIVER

S1 HAS NEW RECEIVER BEEN CONNECTED TO BUS STANDARD NETWORK? — NO / YES

S7 HAS USER CHANGED DATA OF OUTPUT FORMAT OF EACH RECEIVER ON SET-UP SCREEN? — NO / YES

S2 HAS THE RECEIVER ALREADY REGISTERED IN DATABASE? — YES / NO

S8 UPDATE DATABASE USING CHANGES DONE BY USER

END OF UPDATE OF SUPPORT FORMAT OF RECEIVER

S3 ISSUE AV/C INPUT PLUG SIGNAL FORMAT STATUS COMMAND EVERY INPUT PLUG OWNED BY THE RECEIVER. EXAMINE WHETHER OR NOT DESIGNATED INPUT PLUG IS ABLE TO RECEIVE A&M PROTOCOL.

S4 IS THE RECEIVER ABLE TO RECEIVE A&M PROTOCOL? — NO / YES

S5 ISSUE AV/C STREAM_FORMAT_SUPPORT STATUS COMMAND EVERY INPUT PLUG. EXAMINE WHETHER OR NOT RECEIVER IS ABLE TO SUPPORT EACH DESIGNATED AUDIO FORMAT.

S6 STORE EXAMINED RESULT INTO DATABASE AS DEFAULT VALUE. IF EXAMINED RESULT IS "BEING ABLE TO SUPPORT", SET "OUTPUT DATA AS IT IS." IF EXAMINED RESULT IS "NOT BEING ABLE TO SUPPORT", SET "TRANSFORM DATA IN TO LPCM FOR OUTPUT."

DATABASE FOR OUTPUT FORMATS

RECEIVER R(A)
DOLBY(R)DIGITAL:
   OUTPUT DATA AS IT IS
DTS: TRANSFORM DATA INTO
   LPCM FOR OUTPUT
MPEG:TRANSFORM DATA INTO
   LPCM FOR OUTPUT

RECEIVER R(B)
DOLBY(R)DIGITAL:
   OUTPUT DATA AS IT IS
DTS:OUTPUT DATA AS IT IS
MPEG:OUTPUT SATA
   AS IT IS

END OF RESEARCH FOR SUPPORT FORMAT OF RECEIVER

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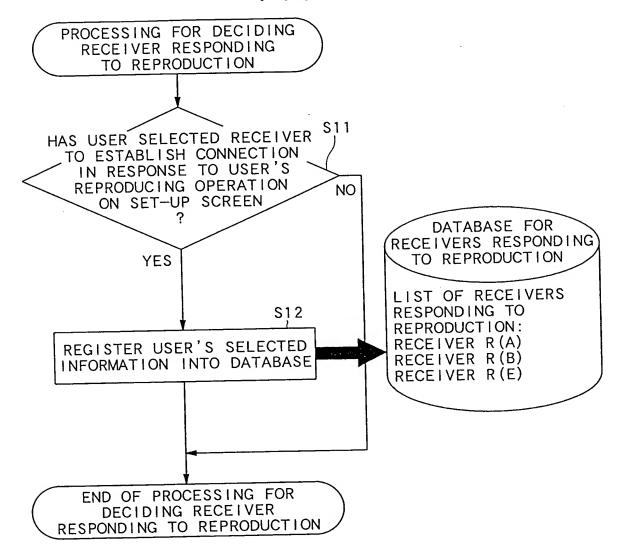METHOD AND APPARATUS FOR
TRANSMITTING INFORMATION VIA SERIAL
BUS
Q77407
September 12, 2003
Darryl Mexic   (202) 293-7060
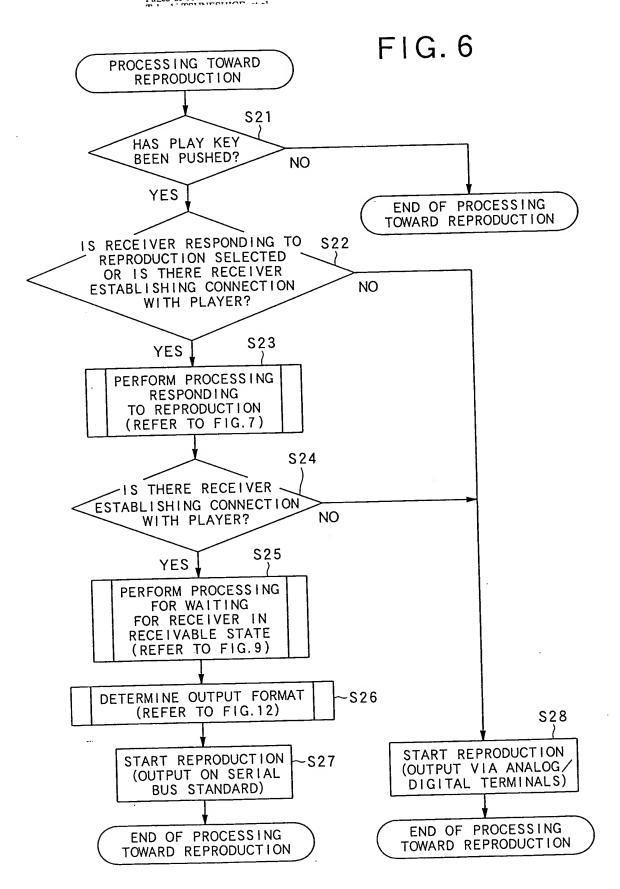Page 3 of 11
Takashi TSUNESHIGE, et al.

FIG. 3

	length	ck	msb							lsb
Opcode	1	√	INPUT PLUG SIGNAL FORMAT (19_{16})							
Operand[0]	1	√	plug							
Operand[1] ⋮ Operand[4]	4	√	all FF_{16}							

FIG. 4

	length	ck	msb							lsb
Opcode	1	√	STREAM FORMAT SUPPORT $(2F_{16})$							
Operand[0]	1	√	subfunction							
Operand[1]	1	√	plug							
Operand[2]	1	√	FF_{16}							
Operand[3] Operand[4] Operand[5] Operand[6] Operand[7] Operand[8]	6	—	format_information[0]							
Operand[9]	1	√	FF_{16}							
Operand[10] Operand[11] Operand[12] Operand[13] Operand[14] Operand[15]	6	—	format_information[1]							
Operand[16]	1	√	FF_{16}							
Operand[17] Operand[18] Operand[19] Operand[20] Operand[21] Operand[22]	6	—	format_information[2]							

Takashi TSUNESHIGE, et al.
METHOD AND APPARATUS FOR
TRANSMITTING INFORMATION VIA SERIAL
BUS
Q77407
September 12, 2003
Darryl Mexic (202) 293-7060
Page 4 of 11

FIG. 5

```
           ╭─────────────────────────────╮
           │  PROCESSING  FOR  DECIDING   │
           │    RECEIVER  RESPONDING      │
           │     TO  REPRODUCTION         │
           ╰─────────────────────────────╯
                          │
                          ▼
```

HAS USER SELECTED RECEIVER S11
TO ESTABLISH CONNECTION
IN RESPONSE TO USER'S
REPRODUCING OPERATION
ON SET-UP SCREEN
?

NO

YES

```
╭─────────────────────────────────╮
│ DATABASE  FOR                    │
│ RECEIVERS  RESPONDING            │
│ TO  REPRODUCTION                 │
│                                  │
│ LIST  OF  RECEIVERS              │
│ RESPONDING  TO                   │
│ REPRODUCTION:                    │
│ RECEIVER  R(A)                   │
│ RECEIVER  R(B)                   │
│ RECEIVER  R(E)                   │
╰─────────────────────────────────╯
```

S12

```
┌─────────────────────────────────┐
│  REGISTER  USER'S  SELECTED      │
│  INFORMATION  INTO  DATABASE     │
└─────────────────────────────────┘
```

```
╭─────────────────────────────╮
│  END  OF  PROCESSING  FOR    │
│    DECIDING  RECEIVER        │
│ RESPONDING  TO  REPRODUCTION │
╰─────────────────────────────╯
```
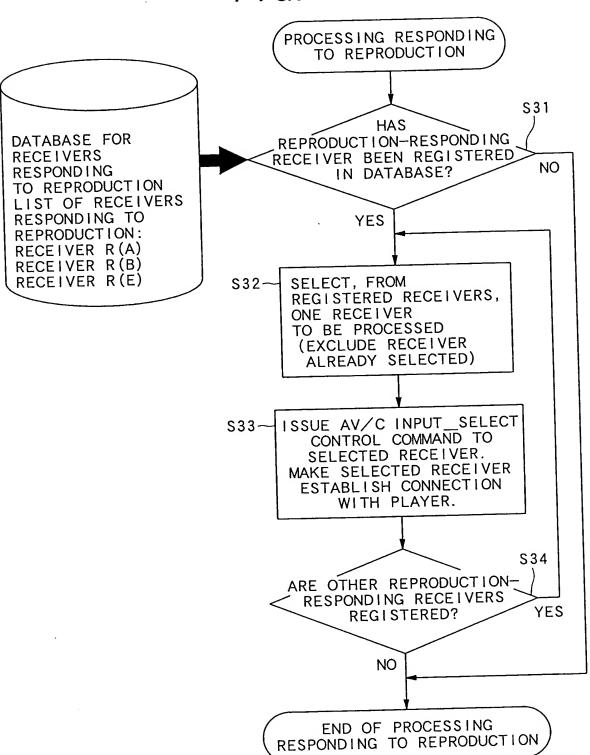
Takashi TSUNESHIGE, et al
METHOD AND APPARATUS FOR
TRANSMITTING INFORMATION VIA SERIAL
BUS
Q77407
September 12, 2003
Darryl Mexic   (202) 293-7060
Page5 of 11

FIG. 6

```
            ┌─────────────────────┐
            │  PROCESSING TOWARD  │
            │    REPRODUCTION     │
            └─────────────────────┘
                      │
                    S21
            ◇ HAS PLAY KEY ────── NO ──────────────────┐
              BEEN PUSHED?                              │
                      │                                 ▼
                    YES                    ┌─────────────────────┐
                      │                    │  END OF PROCESSING  │
                      │                    │ TOWARD REPRODUCTION │
                      │                    └─────────────────────┘
```

IS RECEIVER RESPONDING TO S22
REPRODUCTION SELECTED
OR IS THERE RECEIVER ──── NO
ESTABLISHING CONNECTION
WITH PLAYER?

YES · S23

PERFORM PROCESSING
RESPONDING
TO REPRODUCTION
(REFER TO FIG.7)

S24

IS THERE RECEIVER
ESTABLISHING CONNECTION ──── NO
WITH PLAYER?

YES · S25

PERFORM PROCESSING
FOR WAITING
FOR RECEIVER IN
RECEIVABLE STATE
(REFER TO FIG.9)

DETERMINE OUTPUT FORMAT ~S26
(REFER TO FIG.12)

START REPRODUCTION ~S27
(OUTPUT ON SERIAL
BUS STANDARD)

END OF PROCESSING
TOWARD REPRODUCTION

S28

START REPRODUCTION
(OUTPUT VIA ANALOG/
DIGITAL TERMINALS)

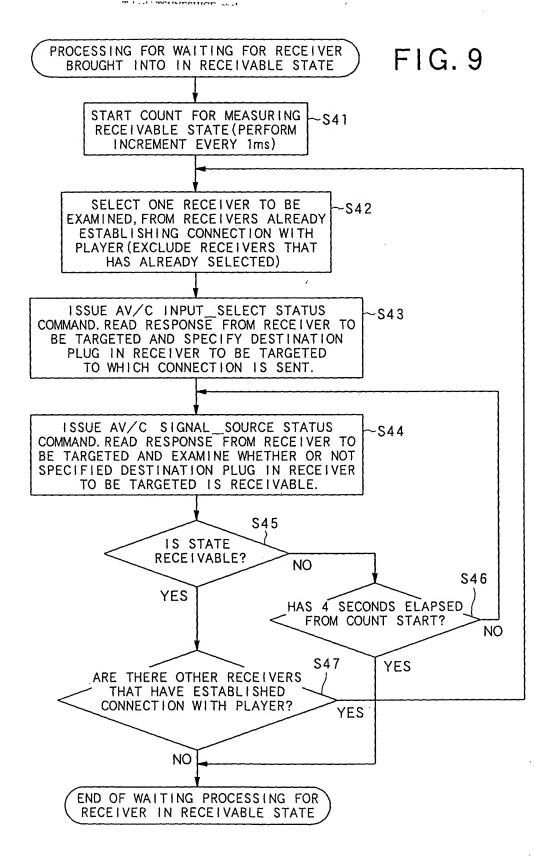END OF PROCESSING
TOWARD REPRODUCTION

Takashi TSUNESHIGE, et al.
METHOD AND APPARATUS FOR
TRANSMITTING INFORMATION VIA SERIAL
BUS
Q77407
September 12, 2003
Darryl Mexic   (202) 293-7060
Page 6 of 11
Takashi TSUNESHIGE, et al.

FIG. 7

DATABASE FOR
RECEIVERS
RESPONDING
TO REPRODUCTION
LIST OF RECEIVERS
RESPONDING TO
REPRODUCTION:
RECEIVER R(A)
RECEIVER R(B)
RECEIVER R(E)

PROCESSING RESPONDING
TO REPRODUCTION

HAS
REPRODUCTION—RESPONDING
RECEIVER BEEN REGISTERED
IN DATABASE?   S31

NO

YES

S32 — SELECT, FROM
REGISTERED RECEIVERS,
ONE RECEIVER
TO BE PROCESSED
(EXCLUDE RECEIVER
ALREADY SELECTED)

S33 — ISSUE AV/C INPUT_SELECT
CONTROL COMMAND TO
SELECTED RECEIVER.
MAKE SELECTED RECEIVER
ESTABLISH CONNECTION
WITH PLAYER.

ARE OTHER REPRODUCTION—
RESPONDING RECEIVERS
REGISTERED?   S34

YES

NO

END OF PROCESSING
RESPONDING TO REPRODUCTION

Takashi TSUNESHIGE, et al.
METHOD AND APPARATUS FOR
TRANSMITTING INFORMATION VIA SERIAL
BUS
Q77407
September 12, 2003
Darryl Mexic   (202) 293-7060
Page 7 of 11

FIG.8

	msb								lsb
Opcode	INPUT SELECT (1B$_{16}$)
Operand[0]	subfunction
Operand[1]	reserved				FF$_{16}$			
Operand[2]	node_ID
Operand[3]	
Operand[4]	output_plug
Operand[5]	input_plug
Operand[6]	signal_destination
Operand[7]	
Operand[8]	reserved

Takashi TSUNESHIGE, et al.
METHOD AND APPARATUS FOR
TRANSMITTING INFORMATION VIA SERIAL
BUS
Q77407
September 12, 2003
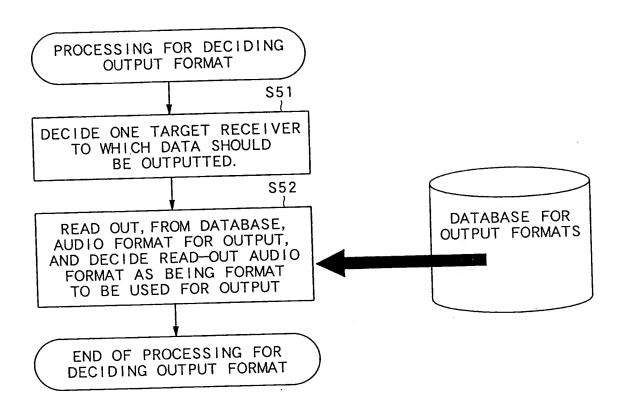Darryl Mexic (202) 293-7060
Page 8 of 11
Takashi TSUNESHIGE, et al.

FIG. 9

```
( PROCESSING FOR WAITING FOR RECEIVER
  BROUGHT INTO IN RECEIVABLE STATE )
```

```
┌─────────────────────────────┐
│ START COUNT FOR MEASURING   │ ～S41
│ RECEIVABLE STATE (PERFORM   │
│ INCREMENT EVERY 1ms)        │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│ SELECT ONE RECEIVER TO BE   │ ～S42
│ EXAMINED, FROM RECEIVERS    │
│ ALREADY ESTABLISHING        │
│ CONNECTION WITH PLAYER      │
│ (EXCLUDE RECEIVERS THAT     │
│ HAS ALREADY SELECTED)       │
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│ ISSUE AV/C INPUT_SELECT     │ ～S43
│ STATUS COMMAND. READ        │
│ RESPONSE FROM RECEIVER TO   │
│ BE TARGETED AND SPECIFY     │
│ DESTINATION PLUG IN         │
│ RECEIVER TO BE TARGETED     │
│ TO WHICH CONNECTION IS SENT.│
└─────────────────────────────┘
```

```
┌─────────────────────────────┐
│ ISSUE AV/C SIGNAL_SOURCE    │ ～S44
│ STATUS COMMAND. READ        │
│ RESPONSE FROM RECEIVER TO   │
│ BE TARGETED AND EXAMINE     │
│ WHETHER OR NOT SPECIFIED    │
│ DESTINATION PLUG IN         │
│ RECEIVER TO BE TARGETED     │
│ IS RECEIVABLE.              │
└─────────────────────────────┘
```

S45
IS STATE RECEIVABLE? NO

YES

S46
HAS 4 SECONDS ELAPSED FROM COUNT START? NO

YES

S47
ARE THERE OTHER RECEIVERS THAT HAVE ESTABLISHED CONNECTION WITH PLAYER? YES

NO

```
( END OF WAITING PROCESSING FOR
  RECEIVER IN RECEIVABLE STATE )
```

FIG.10

	msb							lsb
Opcode	INPUT SELECT ($1B_{16}$)							
Operand[0]	FF_{16}							
Operand[1]	FF_{16}							
Operand[2]	FF_{16}							
Operand[3]	FF_{16}							
Operand[4]	FF_{16}							
Operand[5]	input_plug							
Operand[6]	FF_{16}							
Operand[7]	FE_{16}							
Operand[8]	reserved							

FIG.11

	msb							lsb
Opcode	SIGNAL SOURCE ($1A_{16}$)							
Operand[0]	FF_{16}							
Operand[1]	FF_{16}							
Operand[2]	FF_{16}							
Operand[3]	signal_destination							
Operand[4]								

Takashi TSUNESHIGE, et al.
METHOD AND APPARATUS FOR
TRANSMITTING INFORMATION VIA SERIAL
BUS
Q77407
September 12, 2003
Darryl Mexic   (202) 293-7060
Page 10 of 11

FIG.12

PROCESSING FOR DECIDING
OUTPUT FORMAT

S51

DECIDE ONE TARGET RECEIVER
TO WHICH DATA SHOULD
BE OUTPUTTED.

S52

READ OUT, FROM DATABASE,
AUDIO FORMAT FOR OUTPUT,
AND DECIDE READ—OUT AUDIO
FORMAT AS BEING FORMAT
TO BE USED FOR OUTPUT

DATABASE FOR
OUTPUT FORMATS

END OF PROCESSING FOR
DECIDING OUTPUT FORMAT

Takashi TSUNESHIGE, et al.
METHOD AND APPARATUS FOR
TRANSMITTING INFORMATION VIA SERIAL
BUS
Q77407
September 12, 2003
Darryl Mexic   (202) 293-7060
Page 11 of 11

FIG.13

```
          ┌─────────────────────────┐
          │  INDICATOR  LIGHTING    │
          │      PROCESSING         │
          └─────────────────────────┘
```

                    S61

          IS POWER IN   ── NO ──► ┌───────────────────────┐
          "ON" STATE?   │ END OF INDICATOR   │
                                          │ LIGHTING PROCESSING │
             YES   └───────────────────────┘

                                 S62
      ARE THERE ONE OR MORE
        RECEIVERS THAT HAVE   ── NO ──
      ESTABLISHED CONNECTION
           WITH PLAYER?

      YES   S63   S64

  ┌──────────────────────┐   ┌──────────────────────┐
  │ TURN ON INDICATOR │   │ TURN OFF INDICATOR │
  └──────────────────────┘   └──────────────────────┘